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ABSTRACT

This study examines how preservice educators utilized Internet resources in an integrated thematic unit at the elementary school level. A cohort of 64 senior-level preservice elementary education students were required to use Internet resources to create lesson plans and teach integrated units during the semester. Three surveys were carried out to collect data regarding Internet access, computer technology background, and difficulties encountered in using Internet resources in curriculum planning and implementation. Lesson plans from the unit were analyzed to determine the level(s) of Internet usage. The examination of the thematic units revealed limited use of Internet resources with few integrating resources into the lesson plans. A Phase Two study in the second semester showed changes from the first year's findings: more inclusion of resource materials in the lesson plans with greater integration of materials and less difficulty in accessing information. Contains 14 references. (EH)

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Elementary Preservice Teachers' Use of the Internet in Designing and Teaching Social Studies Integrated Units

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Elementary Preservice Teachers Use of the Internet in Designing and Teaching Social Studies Integrated Units

During his state of the union address in January, 1996, President Clinton declared an impressive goal -- every American classroom would have Internet access by the year 2000. This declaration reflects the growing concern for providing access to Internet resources for elementary school students. Educators at all levels are recognizing the need for training in how to use these resources. The need for training begins in preservice education. Integrating technology into the curriculum has become as important to preservice education as learning to organize an integrated curriculum unit (Barksdale, 1996). According to Barksdale, many colleges of education need to learn how to incorporate technology with teaching so that new teachers will be able to use it in their classrooms. This study examined how preservice educators utilized Internet resources in an integrated thematic unit at the elementary school level.

Meaningful learning for students utilizing Internet resources begins with teachers who know how to use it. The Center for Children and Technology reported the 1992 findings from a national survey of teachers who were recognized as accomplished users of technology. The Center surveyed teachers to find out why Internet was not being used by many teachers. The survey found teachers need increased access to Internet. Ideally, teachers also need several computers in the classroom so that they can go online as a routine part of instruction. Teachers indicated a need for more Internet resources designed with the K-12 community in mind. The most positive responses about using Internet came from teachers who had opportunities to learn by practicing and working with peers.

Having access to information does not guarantee that information will be used to construct meaningful learning. Morrison and Collins (1995) used the analogy that watching a tennis match does not teach you how to play the game. Students must be involved in the integration of new information into existing cognitive structures. Traditional thoughts about teaching and learning are questioned by many educators. Internet provides a means for electronic communication and research that will enhance a new approach to teaching (Wilson & Marsh, 1995). Active approaches to learning in which students use technology for reading, writing, observing, utilizing primary data, and problem solving move away from traditional roles for students and teachers and toward a constructivist approach in which learning is centered on the students in real world contexts. The elements of constructivist learning occur when students are actively involved in learning and encounter ways to integrate new understandings into a background of existing knowledge.

The world's knowledge has been compared to a kaleidoscope Harter & Gerhrke, 1989).They suggested curricula can be represented by the mirrors through which integration and organization are brought to the jumble of life's experience and knowledge. This concept of the kaleidoscope is an appropriate way to look at the world of knowledge available on Internet. Teachers must take a look at their students, their interests, and past learning to structure types of learning activities that are represented by teacher presentation, guided practice, and student constructions of knowledge (Harter & Gerhrke). The integration of Internet into the curriculum gives power to students and teachers to construct meaning from current information in an ever increasing body of knowledge. Teaching strategies that utilize technology can encourage the development of cognitive structures emphasizing qualities of meaningful learning (Jonassen, 1995).

Tapping into technology as a resource and instructional tool for today's classroom imposes an exciting challenge for educators at all levels. Teachers who believe technology can enhance the

process of teaching and learning are more likely to include technology in instruction. When should we begin the task of integrating technology into the elementary curriculum? According to Mitchell-Powell (1995) an analysis of the usefulness of emerging technologies in the elementary environment must include realistic expectations for recognizing their purpose. The potential computer technologies hold for elementary teaching and learning environments comes with the recognition that additional research is needed to examine the benefits of a technology-rich curriculum (Silva & Cartwright, 1993).

Learning to be a teacher is a complex process including content preparation and actual classroom teaching experience (Novak & Knowles, 1991). Prospective teachers spend many hours in classroom observation followed by guided experiences in teaching during the higher education experience. Field experiences in education should include opportunities to practice using and teaching with technology. Preservice teachers who use technology as a tool for teaching and learning bring added skills to the classroom environment (Ingram, 1993). Internet brings enormous potential to educational programs that seek to integrate technology in the preservice curriculum. However, research on how Internet is being used in today's classrooms is limited (Silva & Cartwright, 1993). By examining the technology integration currently taking place in a teacher education program the process that defines that implementation can be studied.

An open-ended study was conducted in two phases to investigate the ways in which preservice teachers would use of the World Wide Web in the preparation and implementation of an integrated unit for elementary students. Preservice educators need to see how to make subject matter connections with technology (Barksdale, 1996). Five levels of usage of the Internet by a classroom teacher with elementary students were outlined. Level 1 occurs when Internet resources are used to provide content information for the teacher. Level 2 occurs when Internet resources are shared with students to provide content information. Level 3 occurs when the preservice teacher incorporates Internet information directly into a lesson. Level 4 occurs when the preservice teacher acts as a learning facilitator in a student-directed project using a variety of Internet materials. Level 5 occurs when the elementary students directly plan and and implement their use of the Internet.

This study examined preservice elementary teachers' usage of the Internet in their planning and implementation of an integrated thematic unit. The study was carried out in two phases. Phase 1 occurred in the first semester of the academic year and involved the incorporation of Internet training into the methods block portion of the preservice teacher education program at a southeastern university. Phase two instituted changes in the methods block program in regard to Internet training of preservice teachers based on the findings from Phase 1 and was carried out during the second semester of the academic year. The research questions investigated were: 1) What levels of Internet usage are found among elementary preservice teachers as they write and implement an integrated thematic unit during their methods block semester? and 2) How does the structure of the teacher education program's Internet training affect the levels of Internet usage among preservice teachers?

Procedures -- Phase 1 of the Study

The population for Phase 1 of the study was a cohort of 64 senior-level preservice elementary education students. They were participating in a blocked methods semester in which there was an emphasis on curriculum integration. The program blocked courses in social studies, science, mathematics, reading, and language arts education. Preservice teachers were placed randomly in eight schools in two school systems. These schools were part of a rotation resulting in their use as field placement sites for the methods block program in that semester.

These students were first semester seniors participating in the methods block during the term prior to student teaching. The subjects were in their field placements for a total of six weeks of the 15-week semester. Since a focus of this blocked set of courses was on curriculum

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integration, students were required to plan and implement an integrated thematic unit in which social studies was a major component. Science and mathematics were the other two major components. These students had an added requirement -- they were to include Internet resources in the unit.

Access to the World Wide Web was available in three computer laboratories in the College of Education. Students had Internet and electronic mail accounts. Word processing was required to complete course assignments. Some had had classes which promoted skills in Internet navigation and searching.

An open-ended investigation was designed for Phase 1 to discover how the preservice teachers would use Internet resources if they were available. Minimal direction was provided for using Internet resources. An internet workshop was required where students received information on Internet navigation, search engines, and URL addresses. The students were encouraged to "surf" the Internet for information resources to support their integrated thematic unit. A graduate assistant was available to help them with this search. Course syllabi required use of Internet resources in the integrated thematic unit students would develop and implement.

Students were provided with step-by-step instructions on how to access information. They were to find and browse a location and outline the major items available at the location in some detail. Then, they were to describe how the address could be used by a student in a lesson activity. Next, they were to develop a lesson for their unit using material from the Internet site. Faculty were available to help students who indicated they were unable to find resources related to their unit theme. Faculty did not model strategies of instruction utilizing Internet resources. Student knowledge of Internet resources was not evaluated following the introduction. Internet usage was left unstructured during the semester. Options for Internet incorporation into a lesson were discussed in classes. These included the five levels of usage.

Three surveys were carried out to collect data regarding Internet access, computer technology background, and difficulties encountered in using Internet in curriculum planning and implementation. Lesson plans from the unit were analyzed to determine the level(s) of Internet usage. Students whose units indicated no usage of Internet resources were interviewed by a graduate assistant to determine why there had been no usage. Faculty members kept a log identifying student contacts whose focus was discussion of the use of Internet as a resource.

Results-- Phase 1 of the Study

The first survey was conducted to determine how many of the preservice teachers would be working in schools with Internet access. The survey found that none would have access. Either their placement sites were not connected to Internet or Internet usage was limited. Where it was available but limited, the school librarian was the only individual able to access Internet in the school. However, all the sites indicated they were scheduled to have more available Internet access within the next 1 1/2 years. As a result, planned use involving the elementary students with hands-on access would only be available if the preservice teachers made arrangements to transport their students to a university lab to use the Internet. This option was made available to the preservice students. None of them chose this option. The reason given for not taking advantage of this option was difficulty in transporting students to the university site.

A second survey conducted during the first two weeks of class questioned the preservice teachers regarding their technology background (Table 1). The survey queried them regarding: whether they had taken computer technology classes, frequency of use of computer technology to complete class assignments, frequency of exploration of the Internet, and an evaluation of their perception of their own computer expertise. All of the subjects responded to the survey. Most (84%, n=54) had taken technology coursework. All but 3% (n=2) used computer technology in completing assignments for courses they were taking. Over half (60%, n=38) had some

experience using Internet to acquire information. Most (83%, n=53) thought they had average or good computer expertise.

Table 1 about here

A third survey was conducted in the middle of the semester to assess the preservice teachers' skills and concerns with using Internet resources as they worked on the integrated unit. This survey asked them to identify key words used for their Internet searches, to list one Internet resource useful for their unit, to write the addresses of two Internet sites they had visited, and to describe any difficulties they had had in locating Internet resources for their unit. Their responses indicated that many did not have a full understanding of the use of search engines, URL addresses, or reference sites (61%, n=39). Many (61%, n=25) were able to identify an Internet address helpful to them in lesson planning. But, over half (56%, n=23) expressed difficulty with the Internet assignment on an open-ended question designed to encourage them to elaborate on their concerns with using Internet resources in the integrated thematic unit. Responses to this question by those expressing difficulty with the Internet assignment identified one or more of the following as a cause of the difficulty: lack of time during which to use the computer lab, lack of information on the Internet for a specific grade level, and being unsure how to adapt information found on the Internet to students at a specific grade level. One recurring problem noted was crowding in the computer labs. As a result, they had to wait to get access to a computer or had to wait up to 30 minutes to print off materials. The computer labs to which they had access reported an increase in usage of approximately 35% during the term. This was much higher than the 10% increase that had been predicted by computer laboratory staff utilizing trends over the past five semesters.

At the end of the semester the preservice teachers turned in their units after having taught them. Internet usage was a required component as indicated by the course syllabus and on criteria used in grading the completed units, so the inclusion of Internet resources was an expected part of the integrated units. An examination of the thematic units revealed limited use of Internet resources. Eighty-four percent (n=54) used Internet as a personal source of information, a Level 1 usage (Table 2). Few (n=11, 17%) integrated the resources into a lesson plan. Of these, four preservice teachers demonstrated level 2 usage, sharing Internet material with students as a resource for content information. For example, one preservice teacher teaching a unit on Mexico provided seventy pages of maps, information on historical sites, and economic information to her students. These materials had been printed off from three World Wide Web sites and served as current resources that students could use during the unit. Seven preservice teachers demonstrated level 3 usage, incorporating Internet information and materials directly into a lesson enabling students to work with the material and use it as a source of data. As an example of one lesson demonstrating level 3 usage, a preservice teacher's class worked with current population figures from the U. S. Census Bureau graphing the figures given over a span of three weeks. Although Internet usage was required in the unit, 16% (n=10) did not use Internet at all.

A graduate assistant conducted interviews with each of these students to determine why they did not use the Internet although it meant losing the points for this requirement. These subjects indicated they just did not have enough time to use Internet and found it difficult to navigate. They thought the time spent navigating was not worth the benefits to be gained. Several (n=7) reported deciding to forgo the Internet requirement and work on other requirements instead. Three of those interviewed reported they were confused and unable to figure out how to incorporate Internet resources in their lessons. None of these ten students had sought out faculty assistance in locating sites on the Internet or in determining how to incorporate Internet resources into their lessons.

Table 2 about here

Procedures -- Phase 2 of the Study

Phase 2 of the study built upon the results from Phase 1. The cohort of methods block preservice teachers (n=54) in the second semester of the academic year were included in Phase 2. Preservice teachers were given a more intensive training session during the second week of the semester, three hours in length as compared to one hour in Phase 1. During the session they were familiarized with two search engines and others were noted. Hours were reserved each week in a university computer lab in order to provide them with easier access to the Internet. They were given assignments in their social studies and science methods classes requiring them to find a site, describe its contents, identify a concept they might teach with materials from the site, and identify activities appropriate for the beginning exploration of a lesson, the teacher-guided invention in the middle of the lesson, and the expansion of the lesson's ideas at the end of the lesson (Sunal, Sunal, & Haas, 1996). Materials accessed from the Internet were brought into methods classes and used in teaching the methods course to demonstrate how Internet materials can be incorporated into lessons. The preservice teachers again were required to incorporate the use of the Internet into their unit. Weekly, the faculty offered to consult with students about ideas for searches and for the implementation of material accessed from the Internet into lessons.

Results -- Phase 2 of the Study

An initial survey investigated the preservice teachers' computer technology background (see Table 1). Higher percentages of computer classes were reported among this group in comparison to the Phase 1 group. These subjects also reported more frequent use of technology in completing assignments and greater frequency of Internet usage via the World Wide Web. They rated themselves higher in computer expertise than had the Phase 1 preservice teachers.

A second survey carried out in mid semester found a greater percentage (81% vs. 61%) were able to list at least one Internet address helpful to them in lesson planning. Fewer, 31% (n=15) vs. 56% in Phase 1 indicated difficulty with incorporating Internet into their unit. Difficulty with access to computers in the computer labs was reported. The labs reported a 10% increase in usage over that reported for the first semester of the academic year. Although computer laboratory times had been reserved for use by these preservice teachers, they did not always fit into their available time. Although reserving a computer lab reduced demand during a specific time period, it still was not enough. Twenty-five computers were available, but computer laboratory records indicated that often thirty or more methods block preservice teachers showed up to use them.

An examination of the lesson plans written and implemented in the units indicated that all but one student had used Internet resources. This preservice teacher completed few assignments during the semester. All of the other preservice teachers (n=53) used Internet resources at Level 1, as a source of personal information. Thirty-two (61%) of the preservice teachers used Internet resources at Level 2, as a resource for content information for their students.

Level 3 usage occurred among 18 (34%) preservice teachers. These preservice teachers used materials from the Internet within the body of one or more lessons. In one preservice teacher's class, for example, children examined information from the home pages of companies making pulleys as part of a unit on simple machines. They discovered that pulleys are important in robots. Pulleys are an ancient type of machine with important uses in machines representing the

forefront of engineering today. They constructed a sequence of pictures demonstrating the uses of pulleys from ancient to modern times and an accompanying description of how the materials used in making pulleys have represented the materials science of the time. Wooden and stone pulleys were common two millennia ago, later steel pulleys came into use, and today ceramic and composite materials are often used. In an introduction to her unit, the preservice teacher stated that this unit had a heavy social studies - science focus partly because of the information on state-of-the-art pulleys available on Internet.

Level 4 usage occurred among four (8%) of the preservice teachers. They used a variety of resources obtained from the Internet. They also involved students in preparing letters and other messages that were sent to various sites on the Internet relating to the topic under study in the unit. In these cases, the preservice teacher actually sent the messages and printed off responses, or searched the Internet for further information wanted by the students. This occurred because the school at which the preservice teacher was working did not have Internet access so the connection was made using the university computer lab or through a modem at the preservice teacher's home.

One preservice teacher involved her class in a Level 5 usage of the Internet. These students were brought to the university campus for two half days. They explored sites on the Internet related to their unit. Each student had selected a unit subtopic to explore and had identified key words they might use to search for the information they wanted to obtain. Each student was paired with a preservice teacher who was in the methods block and who had volunteered to work with the children. The partner taught the student how to access the Internet and then encouraged the student to take over the keyboard and search for the information wanted. They stayed with the student throughout to offer assistance if the child needed help in the search. Five of the children communicated with students in other parts of the country during their two Internet sessions. These communications resulted in the collection of data at various sites and its transmittal via the Internet.

Conclusions and Implications

Time is a factor cited in the literature as a limitation influencing teachers usage of technology in their teaching (Novak & Knowles, 1991; Baron & Goldman, 1994). In this study, time emerged as a limitation on the use of the Internet by these preservice teachers. As facility with the use of search engines increases, less time is needed to conduct a search. However, as the multiplicity of resources available through the Internet continues to increase rapidly, most searches continue to take time.

While there was only one instance of the use of Internet directly by children, any such usage is time consuming. In a case study of a teacher's Internet usage available on LETSNeT (Gillingham, Ellefson, Topper & Worthington, 1996) John Schick discusses the large amounts of time needed to plan for the effective use of Internet by his students.

Preservice teachers may be more affected by the time factor than experienced teachers. Teachers with ten or more years experience have been studied by Carlson (1991). She reports teachers' adaptation of their personal curriculum planning style to the incorporation of computers into their classroom. As teachers are helped to recognize their already established personal planning processes, they can use these to incorporate computers into the curriculum. These preservice teachers do not have such well-developed planning processes. In their methods block program semester these preservice teachers struggle to develop an effective planning process (Sunal, Sunal, McClelland, Powell & Allen, 1994). The struggle requires large amounts of time. Incorporating Internet into the planning process adds to the time needed to developing an effective planning process. Yet, there is a need to prepare preservice teachers to teach in schools where Internet is available or can be expected to be available within the foreseeable future. Teacher educators face a dilemma that cannot easily be resolved.

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Access to computers and to the Internet was another limitation placed on its use in this study. Access has been reported as a widespread limitation to use by inservice teachers (Topp, Mortensen & Grandger (1995). These preservice teachers had no Internet access in their schools. Happily, shortly after Phase 2 of the study was completed, all of the clinical placement schools acquired Internet access. In future, preservice teachers at these schools will have more opportunity to use Internet personally and with their students. Preservice teacher access to Internet in the university computer lab setting was limited by heavy demand. Although arrangements were instituted to reserve time in a computer lab for these preservice teachers, problems continued because of heavy demand and because of personal time schedules. Fewer problems were reported in Phase 2 than in Phase 1 but they were not completely alleviated. Access at clinical placement sites should relieve some of the demand in university computer labs. While no data were gathered as to home access to Internet among these students, it can be expected that some will have such access and that this group will grow in size reflecting expected growth in the general population. With a focus on the inclusion of Internet into the process of planning and implementing units, teacher education faculty will have to continue to find means to increase access to Internet for their preservice teachers.

During Phase 2, the teacher education faculty instituted several changes in response to results obtained from Phase 1. The initial Internet training session was more intensive and lengthier. It also was more focused with attention given to introducing and practicing with two major search engines. This was followed up by a brief introduction to additional search engines. Assignments were given in two classes that involved preservice teachers in planning a lesson which incorporated Internet. Finally, course instructors modeled the incorporation of Internet by incorporating it into their own teaching. Several changes were instituted and their total effects among the Phase 2 preservice teachers were examined via the preservice teachers unit plans and surveys of technology and Internet usage.

The surveys indicated an increased use of technology to complete assignments and increased Internet usage. Personal ratings of computer expertise rose. These Phase 2 preservice teachers also more frequently listed Internet addresses helpful in lesson planning. These preservice teachers reported somewhat more training in terms of computer classes taken (a 2% increase) and also reported a greater number of computer classes taken at the nine credit hour level (a 7% increase). This may account for the improved ratings of computer expertise and technology/Internet usage. However, when represented as percentages, the improved ratings exceed the increased percentage of students with computer class training backgrounds. For example, a 20% increase is found in their identification of Internet addresses helpful in lesson planning, and a 13% drop is found in students who consider their computer expertise as poor.

Preservice teachers' use of the Internet in their units increased in Phase 2 and the level of usage also increased. There was a 14% increase from Phase 1 in Level 1 usage with just one student demonstrating no Internet usage as compared to nine students in Phase 1. Level 2 usage increased from 6% to 61% and Level 3 usage increased from 11% to 34%. Such increases suggest the instructional changes instituted by the faculty in Phase 2 had a positive impact on the incorporation of Internet resources into the units.

Problems continue with the incorporation of Internet usage into the preservice teacher education program. Time and access issues have not been satisfactorily addressed, particularly in terms of the difficulties preservice teachers have in developing their own planning process. Usage of Internet directly by children has been almost nonexistent in both phases of this study. As Internet access becomes available at clinical placement sites, there should be an increase in direct involvement in Internet by children. Such involvement will present management and planning problems to the preservice teachers. Therefore, the direct involvement of children may grow more slowly than other levels of Internet usage. Such involvement may best occur when preservice teachers can observe modeling by teacher educators who teach demonstration lessons at clinical

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placement sites. Teacher educators still have many challenges ahead as they prepare new teachers for schools and schooling in which Internet is an integral component.

References

Baron, L. & Goldman, E. (1994). Integrating technology with teacher preparation. In B. Means (Ed.), Technology and education reform (pp. 81-100). San Francisco: Jossey-Bass.

Barksdale, J. (1996). New teachers: Why schools of education are still sending you staff you'll have to train in technology. Electronic Learning, 15, 38-45.

Canella, G. & Reiff, J. (1994). Individual constructivist teacher education: Teachers as empowered learners. Teacher Education Quarterly, 21, 27-35.

Carlson, E. (April, 1991). Teaching with technology: "It's just a tool." Paper presented at the annual meeting of the American Educational Research Association. Chicago, IL.

Gillingham, M. Ellefson, N., Topper, A., & Worthington, V. (April, 1996). Organizing the world-wide web for teachers: Hypertextual database strategies. Paper presented at the annual meeting of the American Educational Research Association, New York, NY.

Harter, P. & Gerhrke, N. (1989). Integrating curriculum: Kaleidoscope of alternatives. Educational Horizons, 41, 12-16.

Jonassen, D. (1995). Supporting communities of learners with technologies: A vision for integrating technology with learning in schools. Educational Technology, 35 (4), 60-63.

Mitchell-Powell, B. (1995). More than just a pretty interface: Access, content and relevance in computer technology. technology and Social Studies, 7(3), 11-12.

Morrison, D. & Collins, J. (1995). Epistemic fluency and constructivist learning environments. Educational Technology, 35(5), 39-45.

Novak, D. & Knowles, J. (1991). Beginning elementary teacher's use of computers in classroom instruction. Action in Teacher Education, 13 (2), 43-51.

Silva, M. & Cartwright, G. (1993). The Internet as a medium for education and educational research. Educational Libraries, 17(2), 7-12.

Sunal, C., Sunal, D., & Haas, M. (1996). Meaningful learning in social studies through conceptual reconstruction: A strategy for secondary students. Inquiry in Social Studies, 32 (1), 1-16.

Sunal, C., Sunal, D., McClelland, S., Powell, D., & Allen, B. (1994). Integrated teaching units: Preservice teachers' experiences. Journal of Social Studies Research, 18 (2), 10-18.

Topp, N., Mortenson, R., & Grandger, N. (1995). Building a technology -- using faculty to facilitate technology-using teachers. Journal of computing in Teacher Education, 11(3), 11-14.

Wilson, E., & Marsh, G. (1995). Social studies and the Internet revolution. Social Education, 59, 198-202.

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Table 1

Computer and Internet Usage Among Subjects

Category	Percentage, n (64) Phase 1	Percentage, n (54) Phase 2
Computer classes taken by semester credit hours		
0	9%, n=6	7%, n=4
3	33%, n=21	28%, n=15
9	58%, n=37	65%, n=35
Technology use in completing assignments		
Frequently	89%, n=57	94%, n=51
Occasionally	8%, n=5	7%, n=4
Never	3%, n=2	0%, n=0
Frequency of Internet usage via World Wide Web		
Frequently	22%, n=14	30%, n=16
Occasionally	39%, n=25	42%, n=23
Never	39%, n=25	28%, n=15
Personal rating of computer expertise		
Good	17%, n=11	23%, n=12
Average	66%, n=42	73%, n=39
Poor	17%, n=1	4%, n=3
Listed Internet address helpful in lesson planning		
Yes	61%, n=39	81%, n=44
No	39%, n=25	19%, n=10

Table 2

Levels of Internet Usage

	Phase 1 n=64	Phase 2 n=54
Level		
1	84%, n=54	98%, n=53
2	6%, n=4	61%, n=32
3	11%, n=7	34%, n=18
4	0%, n=0	8%, n=4
5	0%, n=0	2%, n=1